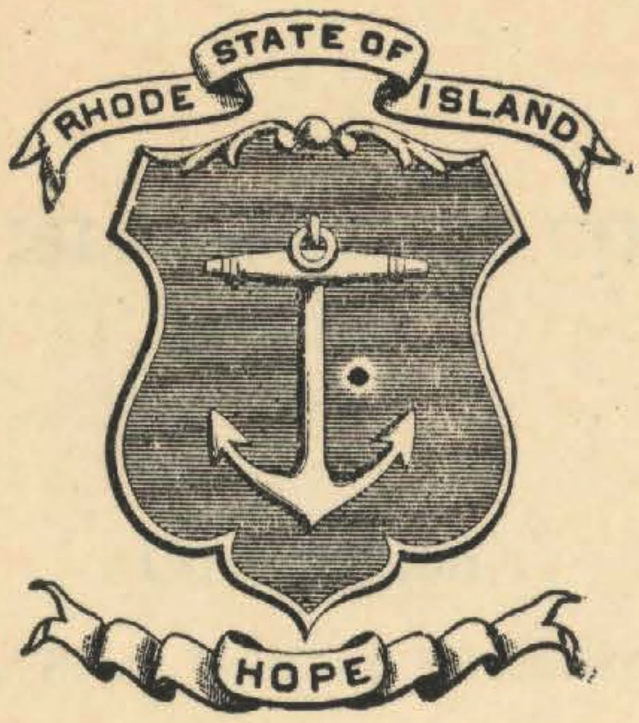
Bulletin of Rhode Island State College.

VOL. XIX FOR FEBRUARY, 1924

REPORT OF THE BOARD OF MANAGERS



KINGSTON, R. I.

1924

PUBLISHED QUARTERLY BY THE COLLEGE
MAY, AUGUST, NOVEMBER, FEBRUARY

ENTERED AT KINGSTON, RHODE ISLAND, AS SECOND-CLASS MATTER

The Auto Press, Printers, Pawtucket, R. I.

RHODE ISLAND STATE COLLEGE

Corporation

HON. WALTER E. RANGER, *Pres.*, Com. of Education, *ex-officio*....Providence

HON. ZENAS W. BLISS, *Vice-President*.....Providence Co., Providence

HON. ROBERT S. BURLINGAME, *Clerk and Treasurer*....Newport Co., Newport

HON. THOMAS G. MATHEWSON.....Kent Co., East Greenwich

HON. CHARLES ESTES.....Bristol Co., Warren

HON. ROWLAND HAZARD.....Washington Co., Peace Dale

HON. PHILIP A. MONEY, Member of State Board of Agriculture.....Exeter

REPORT

To His Excellency William S. Flynn, Governor, and the Honorable General Assembly of the State of Rhode Island and Providence Plantations, at its January Session, 1924:

I have the honor to submit herewith the Thirty-Sixth Annual Report of the Board of Managers of Rhode Island State College, as required by law.

WALTER E. RANGER,
President, Board of Managers.

REPORT OF THE PRESIDENT OF THE COLLEGE

To the Board of Managers, Rhode Island State College:

GENTLEMEN: I have the honor to present the following as my report for the eleven months constituting the State fiscal year 1923.

The year has been one of prosperity and progress. The outstanding features have been the pressure for entrance to our various courses, the overcrowding of our facilities, the unmistakable demand for increased facilities of every kind. The increase in attendance has been 18% over last year, but that statement does not represent the real demand for education at this institution. The present capacity of the college using both personnel and equipment at their limit for efficiency is about four hundred students. The present number is the physical limit of space. We had to turn away applicants and to send out word that we were unable to take in any more.

It is well to notice here that we occupied the new Agricultural and Administration Building in 1921. A comparison of attendance in that year, with the attendance of the current year shows an increase of 35%. The meaning of these things—the present pressure for entrance and the increase of over one-third in the intervening time—is that there is being provided here a kind and quality of education that appeals in this state, as it does in every other, "not merely to those destined to sedentary professions, but to those needing higher instruction for the world's business, for the industrial pursuits and professions of life".

It behooves both the college authorities and also the people of our state to look forward and to plan wisely for the immediate future. In view of the recent increase of attendance as just noticed, it is a conservative estimate to look forward to an attendance of eight hundred students within five years, if proper provisions are made. The whole situation turns on the ability and

willingness of the State to make necessary provision. A definite policy should be adopted and carried out. I shall at this time merely submit certain views of my own on the general questions (1) of the function and place of the college in a democracy, and (2) on the degree of limitation that the State can afford to exercise for its own sake in providing opportunity for adequate college training for its citizenry.

The Place of a College in a Democracy.

If we are to discuss the subject intelligently it seems necessary first to determine the content and meaning of the term college as it will be used in this paper. Dr. Nicholas Murray Butler, arbiter veneraddus rerum academicarum, distinctly states that the use of the term in connection with such illiberal subjects as engineering or journalism (he is serenely oblivious of humble agriculture) is "quite indefensible", and asserts oracularly that "the term college can be properly used only of an institution which offers training in the liberal arts and sciences to youths who have completed a standard secondary school course of study". One wonders if in the use here of the term **liberal** there is any distant heritage of the social distinction among the Romans between the Artes liberales, like rhetoric and music permitted only to freemen, and the Artes serviles, like agriculture and surgery reserved for slaves.

In an older day and under the influence of English class distinctions it was easy to determine the content of the word **liberal** as applying exclusively to that which liberated the self from the trammels of sordid things, standardized his judgment and his aesthetic perceptions, and furnished his mind with a certain conventional range of information which constituted an esoteric freemasonry "the possession and application of which" as Dr. Butler says "are the marks of the truly educated and cultivated man". But in the sweep of modern democracy, the whole situation is reversed. The emphasis has shifted from egoism to altruism, from the power to enjoy to the power to serve. The earmarks of the liberally educated man or woman are no longer a certain easy patter about things remote from actual life or a queasy shrinking from contact with Main Street, but the willingness and ability to give one-self in some effective fashion to the needs of one's day and time.

I am constrained to believe, Dr. Butler notwithstanding, that very few, even among those who valiantly maintain the pre-eminent potency of the time-honored discipline of the classical curriculum, would in this day contend for an ideal of liberal culture that constitutes an end and aim in itself, or would agree with Sir William Hamilton that "the perfection of man as an end and the perfection of man as a mean or instrument are not only the same thing, they are in reality generally opposed".

Sir William goes on to explain further: "and as these two perfections are different, so the training requisite for their acquisition is not identical and has, accordingly, been distinguished by different names. The one is styled liberal, the other professional education—the branches of knowledge cultivated for these purposes being called respectively liberal and professional, or liberal and lucrative sciences".

I trust that I shall not be understood as belittling or undervaluing the great and vitally important "branches of knowledge" thus denominated as liberal. On the contrary I realize that they are essential in any well-ordered scheme of higher education. The more of such training rightly motivated one can afford, the better is one fitted for that liberality of oneself in service and that capability for service that I believe to be the end and goal of all right-minded directors of educational programs. With us all, I imagine, it is mainly a question of time—what it is best to do with a certain limited number of years, and this limitation itself varies with the necessities of individuals. Concerning the end had in view, however, I cannot be other than strongly insistent. Whatever our college process or curriculum, we dare not pose the perfection of the man himself as an end, and oppose to it the purpose of service for which God made him.

In this discussion, therefore, I shall assume that we are considering the American college in all its forms—an institution taking young people who have completed the usual four-year high-school or secondary course, training them through four years in preparation for life and bestowing at the end of the course the bachelor's degree. We are asking, what place in a democracy—the American democracy—has such an institution?

Let us consider for a moment the nature of our American

democracy. Our fundamental doctrine is that all power originates with the people. There are 105,000,000 of us and the increase in the last decade was 15%. Of these some fourteen million are foreignborn whites. We are of all colors, all degrees of civilization, all religions, and none, all grades of intelligence, all forms of civic and economic philosophy, all phases of moral development, and all eager and busy about the advancement of personal aims and fortunes. A conglomerate mass of people with varying traditions, customs, modes of life, social organization and discipline, and inner motive forces; yet on the unity of purpose and wisdom of decision of this turbulent nightmare of feverish antagonisms and discordant cries depend our individual lives and fortunes, and the safety and honor of the great Republic we love and revere.

Economically, we are even more intimately bound together, yet even more violently torn asunder by conflicting interests and passions. The failure of a wheat crop or a corn crop brings misery and starvation not merely to the farmers primarily concerned, but also to dwellers in the crowded tenements of teeming cities thousands of miles away. The angry and cruel disputes of coal barons and organized miners send terror through the hearts of men that never saw a coal mine and can have no direct part in composing their quarrel. Continually there are strikes and lockouts, feuds, murders, and riots, floods and drouths, business depressions and financial failures, and continually through the body politic run consequent tremors of pain and distress affecting thousands of people who have no part in the original causes and indeed may have no knowledge of the causes themselves.

As one contemplates this apparent confusion, this apparent planless discord, one sometimes wonders how we exist at all, whether the whole system of our civilization is not trembling to its fall, and whether, especially, with wiser councils and more unselfish ideas of service, there may not gradually grow up a finer and fairer organization of human life among us that will lessen the shock of aimless disaster and bring greater security and effectiveness throughout our whole social organization.

Thoughts of this kind are, I am aware, by no means unique. Every now and then someone writes a Utopia. H. G. Wells is,

so far as I know, the most recent one. The presses groan with books and the forums resound with strident voices announcing panaceas for social and political wrongs. But, alas, social progress is not so easily and quickly achieved and how dreadful is the penalty for hasty mistakes is written in the bloody horrors of Russia's ghastly story. Steep and painful is the path of genuine progress and it is traversed only by slow and laborious effort.

This human society of ours is served today by appliances unknown only a comparatively few years ago. I do not need to enumerate the marvels of science and their applications to the service of man, that have become commonplaces in our everyday life. There is no phase of human life that has not been touched and transformed by the astounding achievements of modern science. Indeed we may say that the advancement in science and invention has been the cause both of the enormous increase in population of our America and of the whole world, and also of the infinite complexity and confusion of social life. Our knowledge of nature and its secrets has far outrun our knowledge of the human spirit and our ability to organize and direct social development.

One hundred years ago there were in our country and indeed in the world no railways and telegraph lines, that is to say, no rapid method either of travel or communication. Since that time the population of the earth has multiplied itself two and one-half times and that of our own country eleven times.

Since that time the nation has spread itself over, occupied, and built up an area three and a third times as great as the area originally held. The bare words mean nothing; their import is overwhelming. And it has all been made possible and been brought about by scientific discovery and the application of science to every phase of production, transportation and communication.

In a quite inadequate way, I feel, I have sketched this enormous hydra-headed, turbulent democracy of ours. In many ways the American college is responsible for it. It suggests one of those ungainly boys that sometimes comes to us. Physically he is overgrown, awkward, incredibly strong. Mentally he is backward, undisciplined, passionate, self-assertive, yet withal cu-

riously honest, impulsively generous, impatiently eager. There is in him the possibility of an abrupt and rapid decline into a monster of lust, ferocity and bestiality. There is the making of one of God's noblemen, a tower of refuge against oppression, a power for righteousness in the land. The function of the college is to determine the event.

Does it seem too presumptuous to say that the destinies of these United States will be determined by the colleges? Might not the Church object that it determines the conscience of men and so in the final analysis fixes the stability and direction of the nations? Might not the school men say, "We train hundreds where the college touches one. The destiny of the nation is in the hands of the masses and we alone directly affect the life of the masses".

Far be it from me in the smallest degree to minimize the importance either of the church or of the school. They are primary factors in the upbuilding of our civilization and a bulwark of defense in assuring the safety of the nation. We could not survive without them. Nevertheless it is the college which ultimately fuses the teleology and ethics of the church with the constantly growing body of human knowledge and creates for the new life just going out to take up the directive burdens of society working formulas for the activities in which it must engage. Certainly, too, it cannot be denied that the schools are created, energized and vitalized by the college both as to instructional personnel, and as to content and methods of instruction.

The enormous significance of the college in our national life was almost startlingly revealed in our short participation in the Great War. In every phase of the feverish activity that ensued, the college-bred man was the vitalizing power. It was the fact that, through the years preceding, the Nation had by means of its colleges leavened all its life—agricultural, industrial, commercial, financial, social, philosophical, and political—with the leaven of scientific thought informed with practical idealism, that enabled us to triumph over disorganization, sordidness, and incapacity, and accomplish tasks of a kind and magnitude never before undertaken.

The processes by which this function of motivating, influencing and directing our social life, material and intellectual, is per-

formed are first, the equipping of men and women in a foundational way for the complicated tasks of life on every plane. We are coming, for instance, into a day when Labor must be able to command in its own ranks a grade of intellect trained in social and economic science fully equal to that afforded by our best colleges and universities. Significant in this connection is the fact that the great labor organizations are now establishing labor colleges and universities; and food for deep and earnest thought is offered by a little paragraph in one of the daily papers, stating that Bryn Mawr summer school was refused endorsement as an institution for the education of workers by "Workers' Educational Bureau", which moreover denominated as "potential enemies of labor" all extension courses conducted by colleges well known throughout the land.

In a simpler day, it sufficed, even for a democracy, that the average man should have the rudiments of what the census calls literacy imparted to him by the common school; and the college existed for the man of purely intellectual pursuits or the gentleman of elegant leisure. Today, every phase of human effort is dependent upon a range of knowledge covering both nature and man and requiring a training of the mind far beyond the college dilletanteism of that earlier day. Not only so as to the immediate tasks of individuals or of classes; but every task is organized into vast aggregations of men, before whom come for action and decision large questions demanding trained powers of intelligence and wide knowledge of a high grade. In such aggregations it is vital for the common welfare that there should be those properly equipped to teach, explain and persuade to sound decisions. This equipment must come from the college. Only through the efficient work of the college can government by legislative blocs and soviet organization be rendered innocuous to the body politic and converted into instruments of betterment.

But not only must the college provide training in more or less direct connection with industry, commerce, and the professions. It must also, in the second place, inform the student with the spirit of service and loyalty to human welfare, with a genuine appreciation and enjoyment of beauty in nature and man, and with love and reverence for those finer things that consti-

tute man's higher life. Nor must this second function be subordinated to the first. There are many who, like Sir William Hamilton, will pronounce the two quite incompatible. If they are, then without doubt our democracy itself is doomed, and through infinite pain and suffering, we must shortly evolve a new and perhaps harsher organization of human society.

My whole contention is for a college built on the central idea of service and not on an idea of personal privilege, except in so far as it is a God-given privilege to be able, through a larger endowment of intellect and training, to render a larger service. What the service is I am not concerned about. He who writes a wonderful poem, he who builds a great bridge, he who cultivates the earth for mankind's food, he who, like Henry Ford, gives to all the earth a marvelous instrument of transportation—if each works in purity of spirit for the best service he can render, is not each equal to the other in God's eye? And if in the midst of his work he has also striven to lift his heart to the eternal things of beauty and truth and love, shall we not call him also cultured?

Our constitution says that all men are created equal; equal in what? Certainly not equal in physical stature nor in mental power, nor in place or possessions. If I had to say in what men are equal—I should say in the claim each has upon the other—in the meaning of the Master when, looking upon the poor widow casting her two mites into the treasury, He said: "Of a truth I say unto you that this poor widow hath cast in more than they all". Can the college bring about this equality? Only when it practices and inculcates the high equality of service embodied in the divine phrase "All the living that she had".

The Landgrant College as Such.

The Landgrant college, or what in New England has become the State College, is the outgrowth of an idea from the mind of a New England statesman, Senator Morrill of Vermont. He expressed it in various ways in his long and finally successful championship of it. Perhaps the most comprehensive and most definite expression lies in the following quotation—"To offer an opportunity in every state for a liberal and larger education to large numbers, not merely to those destined to sedentary pro-

fessions, but to those needing higher instruction for the world's business, for the industrial pursuits and professions of life".

May I emphasize certain phrases of this expression? Note, first, the terms "liberal and larger education". So much has been said about the "bread and butter college" or as more recently I heard it expressed the "ham and eggs college", that I may be pardoned for dwelling upon the phrase I have quoted. As part of the ideal and scope of the landgrant college, it is our business to impart an education, and that not of a narrow and circumscribed kind, but, rather, a liberal and larger education. A liberal education does not inhere primarily in the subject-matter, in the knowledge and information obtained, but rather in the habit of mind created—in order, logical method, power of perceiving and appreciating relations, and the awakening and cultivation of the finer emotions. Nevertheless there are subjects that by their very nature connect themselves with the finer emotions more directly and fundamentally and therefore serve the purposes of culture more immediately and powerfully. Such subjects are language, literature, art, philosophy, history and the like. These subjects will not be omitted from any "liberal and larger" educational course. In its curricula, therefore, the landgrant college always both includes these specific subjects and seeks, through its treatment of the sciences and their applications to vocational ends, to train the mind to orderly and logical method, and to a broad and wide-reaching realization of relations in the universe of men and things. Such is the ideal involved in the phrase "liberal and larger education" as used by the Founder of the Landgrant College and controlling in our thought and action.

Note, further, that our Founder has a purpose not exclusive, but rather inclusive in its scope. He would provide a liberal and larger education **not merely** but nevertheless **expressly for** those destined for sedentary pursuits, persons for whom the endowed college already provided. He recognizes that the needs of persons destined for what were then called the "professions" have been thought out and provided for, yet in his great comprehensive plan, foreseeing the present flood of numbers, he nevertheless includes them even at the risk of temporary overlapping. The main thing that I desire to call attention to at this point is that education for the professions **is included** and is placed on

an exact parity in kind and degree with "higher instruction for the world's business".

You will have realized, however, that the main design is to provide a "liberal and larger education" for "those needing higher instruction for the world's business, for the industrial pursuits and profession of life"; in other words, for agriculture, for the various forms of engineering, for commerce, for all forms of modern industry, and in later years for the scientific handling of the problems of the home. It is here that in its content of instruction the landgrant college has made its widest departure from the traditions of the endowed college. The higher instruction given in that connection must bear the same relations to the world's business that the higher instruction of those destined to sedentary professions bore or bears to these same professions. Hence, leaning most heavily on science, the landgrant college has taught applications of science to matters strangely unfamiliar, nay, barbarously offensive to the ears of those who were wont under cloistral shades to ponder the polish of diction in Vergil's Georgics or savour the music of Homer's resounding lines.

The Problem of Numbers.

Let me point out one other feature of this wonderful and far-seeing charter of the landgrant college. This "liberal and larger education" was to go to "large numbers". Mr. Morrill evidently foresaw a time when the halls of his colleges would be crowded with students. Large numbers! He actually planned to call out large numbers and he had the faith to believe that they would be provided for. "O ye of little faith, wherefore do ye doubt?" This nation has the wealth to provide whatever is for its welfare, and it needs only to be convinced of the need in order to have the will to provide for it.

A horseless carriage is invented. The world soon becomes convinced of the need for this horseless carriage. At once, factories are built, thousands of men are set to work, a new business is organized, millions of capital are absorbed, and shortly, without pausing or slackening in the previous multiform enterprises of our complex social life, there is in actual use one horseless carriage for every eleven people of our population. I have

an exact parity in kind and degree with "higher instruction for the world's business".

You will have realized, however, that the main design is to provide a "liberal and larger education" for "those needing higher instruction for the world's business, for the industrial pursuits and profession of life"; in other words, for agriculture, for the various forms of engineering, for commerce, for all forms of modern industry, and in later years for the scientific handling of the problems of the home. It is here that in its content of instruction the landgrant college has made its widest departure from the traditions of the endowed college. The higher instruction given in that connection must bear the same relations to the world's business that the higher instruction of those destined to sedentary professions bore or bears to these same professions. Hence, leaning most heavily on science, the landgrant college has taught applications of science to matters strangely unfamiliar, nay, barbarously offensive to the ears of those who were wont under cloistral shades to ponder the polish of diction in Vergil's Georgics or savour the music of Homer's resounding lines.

The Problem of Numbers.

Let me point out one other feature of this wonderful and far-seeing charter of the landgrant college. This "liberal and larger education" was to go to "large numbers". Mr. Morrill evidently foresaw a time when the halls of his colleges would be crowded with students. Large numbers! He actually planned to call out large numbers and he had the faith to believe that they would be provided for. "O ye of little faith, wherefore do ye doubt?" This nation has the wealth to provide whatever is for its welfare, and it needs only to be convinced of the need in order to have the will to provide for it.

A horseless carriage is invented. The world soon becomes convinced of the need for this horseless carriage. At once, factories are built, thousands of men are set to work, a new business is organized, millions of capital are absorbed, and shortly, without pausing or slackening in the previous multiform enterprises of our complex social life, there is in actual use one horseless carriage for every eleven people of our population. I have

heard men pause to wonder where the money for them comes from and where the limit is. Well, the limit will be found when the recognized need is supplied and not before.

The value of athletics for our young men and young women suddenly becomes recognized. Fortunately, or unfortunately as you may philosophize over it, this valuation of athletics readily falls in with and gratifies a love of the spectacular. At once the realization of genuine need coalesces with the gratification of human joy in conflict, and the will to provide is engendered. Then, with marvelous ease great ovals appear on college grounds that are wonders of construction, cost millions of dollars and dwarf the Roman Coliseum into insignificance. But let a few hundred thousand youths, properly trained and fitted, and convinced of the need of present-day preparation for present-day complexities of our social organization,—let, I say, these few hundred thousand youths beat at the sedate and placid doors of our colleges, and we come forth with upraised hands, startled, dismayed, and confused. All these years we have been preaching the need of education among our people. Now, when, possibly through the irrefutable demonstration of war, the people agree with us and clamor that we give it, we falter and stammer and deny our faith under some fantastic anachronistic plea of an aristocracy of brains.

The State's Need Forbids Limitation of Numbers.

Let me pause to say that we can no more entrust our lives, our political and economic fortunes to an aristocracy of brains than to an aristocracy of brute strength or of birth, certainly not if that aristocracy is to be determined by college entrance examinations, intelligence tests, or the winning of college degrees. I have been too long familiar with the breed produced by that selective process not to know that the Biblical phrase "deceitful and desperately wicked" is as applicable to their hearts as it is to the hearts of any other human clay. No, if education is to produce any kind of -cracy, let it be a trained, intelligent, disciplined democracy, a democracy in which our fathers believed, and on the development of which rests our only hope of social safety.

I am far from denying that many colleges are overcrowded. The law of diminishing returns (and Henry Ford) tells us that

But secondly, we need education for mutual comfort and progress. Far more than we are commonly aware, division of labor and effort has proceeded. No one is even approximately sufficient unto himself; we are mutually dependent. On the effort of others far and near depends not only the welfare but the very life of each. This is the day of the specialist. Our bread is the affair of the farmer-specialist, our houses are built, furnished and maintained in a habitable condition by specialists. Our health is preserved by specialists, our economic relations are determined by specialists, our government is, or rather perhaps, should be ordered by specialists, and our literature, our art, and our amusements are produced by specialists. On the sufficiency in quality and quantity of these specialists, on their intelligent functioning, the welfare of society and of each individual in it is absolutely dependent. When one line of specialists declines in adequacy either of numbers or of quality all others become distressed. Now these specialists are the product of education and of education alone. Under the pressure of the increasingly complex modern social organization an increasingly prolonged and complex educational process is absolutely necessary to produce these specialists. It becomes therefore a primary duty and necessity of organized society in some way to see to it that educational facilities are provided for their production. We cannot afford to consider the cost. **They must be had.**

All this is old stuff. We began by preaching the necessity of elementary education at public expense, and now all are agreed on that proposition. We carry it without murmuring and we compel children to attend. Under the pressure of public necessity, the public high school was accepted as a legitimate and necessary public burden. Now we have arrived at a point where public necessity, the increasing complexity of social needs (and bear in mind that this is no mere empty phrase) calls for public provisions for college training. Was the college insincere in the old slogans that it so loudly vociferated, when it was eager for students? Does it really believe in what it even now contends when it pleads for funds? Or is it that we are moral cowards, without the courage of our convictions? Or still again is it that we are so absorbed in local conditions that our own college and

its immediate problem constitute for us the horizon of education in its social and national scope?

Our policy should, I think, include the following tenets. (1) A well-established articulation in our educational system from the primary school to the college and university. (2) The assurance of an opportunity for passage without discrimination, social, religious or racial as from the elementary to the high school or preparatory school, so from these to the college, public or endowed. (3) The rigid elimination of those whose deficiency in seriousness of purpose, diligence, intellectual integrity or moral standards is clearly shown, and that without consideration of social standing or athletic prowess. (4) Without any attempt to create a line of cleavage between the high school and the college such as will exclude the man of ordinary brains and due diligence, to admit applicants until the limitations of efficient teaching are reached. (5) And, finally, with absolute faith in the need of the social organism for education, in its primary and elemental claim on the resources of society, to present its necessities frankly and urge its claims courageously. With fair, wise and efficient use of funds already available, I for one have all faith that American democracy will fully recognize its need for an inclusive liberal and larger education and be both able and willing to maintain it.

ATTENDANCE.

Table No. 1.

Showing Attendance by Classes During the Years 1920—24.

Classes	1919 - 20	1920 - 21	1921 - 22	1922 - 23	1923 - 24
Graduate students	4	4	4	4	3
Seniors	41	34	59	54	56
Juniors	53	69	75	67	84
Sophomores	88	98	93	90	87
Freshmen	143	134	138	150	208
Irregular	3	11	15	14	14
Total, college courses	332	350	384	379	452
Two-year courses	10	6	17	12	10
Total	342	356	401	391	462

TABLE NO. 2.

Showing Number of Men and Women, of New and Previous Matriculates, and Number in the Several Courses by Classes for Collegiate Year 1923—24.

CLASS	Sex		Date of Matriculation	
	Men	Women	Previous to 1923	1923
Graduates	3	—	2	1
Seniors	44	12	56	—
Juniors	68	16	83	1
Sophomores	70	17	86	1
Freshmen	172	36	7	201
Irregular	9	5	7	7
Total College	366	86	241	211
Two-Year	10	—	5	5
Grand total	376	86	246	216

	Engineering									
Class	**Ag.**	**Civil**	**Chem**	**Elec.**	**Mech**	**Total**	**Sci.**	**Home Ec.**	**Educ**	**Bus. Ad.**	**Total**
Graduate	—	—	—	—	—	—	3	—	—	—	3
Senior	11	—	6	12	5	23	12	10	—	—	56
Junior	10	12	5	20	6	43	18	12	1	—	84
Sophomore	5	11	5	15	14	45	22	15	—	—	87
Freshman	11	—	—	—	—	110	34	28	—	25	208
Irregular	1	—	—	1	—	1	6	—	1	5	14
Total	38	23	16	48	25	222	95	65	2	30	452
Two-Year	10	—	—	—	—	—	—	—	—	—	10
Grand Total	48	23	16	48	25	222	95	65	2	30	462

HOME RESIDENCE OF STUDENTS.

A. Resident outside of the State:

Connecticut:

Cromwell	1
East Hartford	1
Hartford	1
New London	2
Norwichtown	1
Thompsonville	1
Stonington	2
South Windsor	1
	10

Massachusetts:

Abington	1
Brockton	17
Brookline	2
Campello	1
Dedham	1
East Dedham	1
Fall River	7
Groveland	1
Haverhill	2
Lynn	1
North Attleboro	3
North Easton	1
Plainville	1
Plymouth	1
Revere	2
Roxbury	1
Seekonk	4
South Attleboro	1
South Boston	2
Thorndike	1
Three Rivers	2
West Tisbury	1
Whitman	2
Willimansett	1
	57

New Jersey:

Denmark	1
Helmetta	1
Woodridge	1
	3

New York:

New Rochelle	1
Yonkers	1
	2

Pennsylvania:

Palmerton	3

Total attendance from without the State..... 75

B. Resident in Rhode Island by Counties and Towns:

Bristol:

Barrington	4
Bristol	5
Warren	1
	10

Kent:

Coventry	4
East Greenwich	3
Warwick	9
West Warwick	7
	23

Newport:

Jamestown	1
Little Compton	5
Middletown	2
Newport	28
Tiverton	4
	40

Providence:

Burrillville	11
Central Falls	9
Cranston	14
Cumberland	1

East Providence	6	Woonsocket	12
Glocester	2		268
Johnston	1	Washington:	
Lincoln	6	Charlestown	2
North Providence	5	Hopkinton	2
Pawtucket	25	North Kingstown	8
Providence	174	South Kingstown	19
Scituate	1	Westerly	15
Smithfield	1		46

Total attendance from within the State.....387

Entrance Statistics for Class Registration in 1923.

Number received from high schools	192
Number re-classified and repeating work	9
Number received by examination	2
Number transferred from other colleges	5
Total enrolled in freshman class	208

Analysis of high-school students with regard to number of units credited:

Number credited with fifteen or more units	172
Number credited with fourteen and a half units	11
Number credited with fourteen units	9
Total	192

Number entering with conditions in required subjects as follows:

One-half unit of condition	29
One unit of condition	30
One and one-half units condition	4
Two units condition	8
Total number enrolled with conditions	71
Total number enrolled without conditions	121
Total	192

Average age of men and women, Oct. 1, 1923..18 years, 11 months, 13 days
Age of youngest member of class, Oct. 1, 1923..16 years, 2 months, 12 days
Age of oldest member of class, Oct. 1, 1923....30 years, 6 months, 21 days

Preparatory Schools Represented in Registration of Freshman Class.

In Rhode Island:	
Barrington High	2
Bristol—Colt Memorial	3
Burrillville High	4
Central Falls High	4
Cranston High	11
Cumberland High	1
East Greenwich Academy	1
East Providence	4
Newport—Rogers High	12
North Kingstown High	1
Pawtucket High	12
Providence:	
Classical	6
English	3
Hope Street	6
Technical	48
LaSalle Academy	8
Moses Brown	1
St. Francis Xavier	1
South Kingstown High	2
Warwick High	3
Westerly High	8
West Warwick High	4
Woonsocket High	2
	147
In Connecticut:	
East Hartford High	1
New London—Chapman Tech.	1
Norwich Free Academy	1
Suffield School	1
	4
In Maine:	
Pittsfield—Maine Central Insti.	1
Skowhegan High	1
	2
New Hampshire:	
Winchester High	1
New Jersey:	
Englewood High	1
In Massachusetts:	
Abington High	1
Brockton High	12
Dedham High	1
Fall River:	
B. M. C. Durfee High	6
Dominican Academy	1
Gardner High	1
Haverhill High	1
Lynn—Classical High	1
Mt. Hermon School	1
North Attleboro High	1
East Northfield—Northfield Sem.	1
Palmer High	2
Pittsfield High	1
Plainville High	1
Revere High	1
Roxbury—Horblit's Prep. School	1
Whitman High	1
	34
In Maryland:	
Annapolis—Mt. St. Joseph Col.	1
In New York:	
New Rochelle High	1
In Pennsylvania:	
Allentown Preparatory School.	1
Grand total	192

New Engineering Building.

Request has been made for an appropriation for a new Engineering Building. The reasons for the request are set forth by the head of the Engineering department as follows:

Rhode Island is essentially an industrial state. Her industries

and her engineers have always occupied a position in the front rank of engineering progress and development. She has a most enviable reputation to maintain in the engineering world.

As one factor which may play an important part in the maintenance of this position, Rhode Island has an educational institution which, since its reorganization as a State College, has offered dignified, standard courses in Mechanical, Electrical, Civil and Chemical Engineering. In spite of the popular misconception of the institution as a purely agricultural college, probably due to its origin and early history, considerably over fifty per cent of its students—Agricultural, Engineering, Applied Science and Home Economics—have been enrolled in the Engineering Department.

That the work of the college in this field is being more and more appreciated by the people of the state is shown by the growth of the enrollment in engineering to 240% of its value fifteen years ago. Recognition by the industries is evidenced by frequent reports in commendation of the output of the college and the constantly renewed application for successive classes of graduates. Among the technical institutions of the country, although comparatively small in size and with a relatively very brief history behind her, Rhode Island occupies a position of consideration and respect. All this is in harmony with the type of responsible positions and the rapidly developing successful careers of its alumni.

However, present effectiveness and possible future usefulness to the state are seriously handicapped by the narrowly limited and entirely inadequate physical plant with which the department is equipped. While for several years the work in engineering has been carried on at a great disadvantage in this respect, the immediate needs of other phases of the college development have apparently been even more insistent, and consequently engineering has waited.

During the past fifteen years the total enrollment of students taking collegiate work at Rhode Island has increased three-fold. Likewise the floor area of the buildings used for **general** college purposes (exclusive of farm buildings and greenhouses, etc.) has increased in approximately the same ratio. However, the space devoted to engineering work today is practically the same as it

was fifteen years ago when only 43% of the present number of students were being accommodated.

Of this space much is entirely unsuited to the uses to which it is necessarily put. For example, the buildings occupied as Machine Shop and Forge Shop were built to serve as veterinary hospital and cattle shed respectively. Their construction is such that convenient arrangement of machines and equipment and adequate heating of the building are impossible. During much of the cold weather season the shops are entirely unfit for classes to work in with any degree of comfort and without endangering the health.

The rooms in Lippitt Hall used for Engineering Laboratories allow nothing in the way of development. Even with the limited amount of apparatus at present installed, congestion is unavoidable with the comparatively large sections which are now obliged to use these laboratories. Moreover, at least a third of the Steam Engineering Laboratory is without direct daylight.

For purposes of general drafting, one room only is available. Present sections crowd this room excessively and proper ventilation is impossible. Frequently it becomes necessary to hold two separate and distinct classes in this room at the same time. By filling space not already occupied by drawing tables with chairs this room is made to answer also for lecture and recitation purposes.

The work in Civil Engineering is confined to one small room, which is made to serve as office, instrument room, drafting and lecture room. Under these conditions proper protection of costly instruments is difficult and interference of one group of students with another is often unavoidable.

The room used for lecture and recitation in Electrical Engineering is located in the basement, is dark, overcrowded and very poorly ventilated.

There is a wonderful opportunity to advance the position of Rhode Island industrially in the dissemination of technical information through the agency of an Engineering Extension Department. Moreover, the various state colleges are rapidly falling in line in the establishment of Engineering Experiment Stations for the investigation of such technical problems as are of moment to the industries of the community. If Rhode Island is

to live up to her opportunities, space should be provided wherein such lines of work may develop.

While it is evident that the work in engineering is in most serious need of new space accommodations, it is to be kept in mind that the institution as a whole is developing rapidly and that additional room is needed in other departments. While a new Engineering Building would meet **directly** the needs of this phase of the college work, it would help to meet indirectly the needs of the whole institution. Space which now serves the engineering department very inadequately could be turned to other uses for which it is better adapted. For example, while the present shop buildings are entirely unsuited to their present use, they would be of great value in meeting certain pressing needs of the Agricultural Department. Moreover, the present drafting room and Civil Engineering room might easily be added to the space now occupied by the Library, thus giving room where the many bulletins, journals and reports, which now are necessarily stored away in inaccessible spots, might become available for use.

In review it may be stated: Rhode Island has an enviable reputation in Engineering to maintain; the State College has accomplished much and is doing its best to help maintain this standard; while over 50% of the students of the college have been engineers, other demands have prevented expanding the space accommodations of the Engineering Department as has been done in other branches of the college work; present housing is unsuited and inadequate; provision should be made for work in Experimental Engineering and Engineering Extension; space vacated by the Engineering Department would be of great value to other branches of the College.

Remarks Concerning Finances for the Eleven Months of 1923.

A full statement of the financial condition of the college is contained in the tables prefacing this report. Acting in accordance with the best advice attainable, a supply of coal for the winter was laid in in July and August. The cost was a good deal higher than we had reason to expect when the estimates were made for the year. The total cost was $25,727.31 against an estimate of $19,000. The amount on hand December 10 was

807 tons of soft coal at $10.78 per ton delivered, value $8699.46
204 tons of hard coal at $16.55 per ton delivered, value $3541.70

$12,241.16

In considering the comparative expenses of the fiscal year of eleven months this amount should be deducted from the total as given in the tables.

While no salaries were advanced during the year, yet the increase in numbers has required additional teaching force, and these additions have required higher rates of pay, so that the total salary budget for the eleven months has amounted to $1927.35 above the estimate. Labor, too, has made higher demands of wages with the result that the labor budget has been increased by $3057.14. These increases have, however, been fortunately offset by an increase in current receipts of $5013.28 over the estimate for the eleven months.

Salaries.

In this connection it is necessary to state that it is impossible to continue to work satisfactorily with our present salary schedule. We are continually met by the fact that when we go into the market for new teachers we have to pay higher rates than our present officials are receiving. The discontent thus created is very great, and good teachers are leaving us because they can obtain more elsewhere. The latest returns from the Bureau of Education at Washington give the following schedules:

	National Average	Rhode Island State College	Average New England Land Grant Colleges
Deans	4278	3500	4400
Professors	3500	3038	3668
Ass't. Professors	2400	2200	2496
Instructors	1840	2000	1908

Your Board therefore adopted the following schedule conditioned on funds being obtained to carry it out:

For deans—$3500 to $4000. Increase this year $300. $100 each in subsequent years till maximum is reached.

For professors—$3000 to $3800. Increase this year not uniform. Increase in subsequent years $100 until $3500 is reached. For special merit may increase to $3800.

For ass't. professors—$2500 to $2800. Increase this year not uniform. Increase in subsequent years $100 till maximum is reached.

For instructors—$1500 to $2200. Increase this year not uniform. Increase in subsequent years according to experience and merit.

To carry this schedule out and to add for next fall three new instructors the salary estimate in the budget has been placed at $115,800.

Changes in Staff.

The following resignations have been offered and accepted during the year:

Dr. Henry B. Hall, Economist, taking effect July 15, 1923.

Miss Jennie Rees Bear, M. A., Prof. Teacher-training in Home Economics, Sept. 1.

Albion N. Doe, B. S., Ass't. Prof. Engineering Extension, Sept. 1.

Mahlon G. Knowles, B. S., Instructor Mechanical Engineering, Sept. 1.

Leslie E. Abbott, B. S., Instructor Teacher-training in Agriculture, Sept. 1.

Fred R. Clarke, M. S., Instructor in Botany, Sept. 1.

Captain Alfred S. Knight was transferred to Boston on the expiry of his appointment, August 1. Captain Knight had done excellent work here during his four year tenure of office as Commandant, and we regretted to lose him.

The following new appointments were made:—

Dr. Forman T. McLean has been secured in the Experiment Station for investigational work in physiological botany. He will take up the work that was being carried on in part by Mr. F. R. Pember, who, on account of a break-down in health, received from your body, one year ago, a year's leave of absence. Mr. Pember's health has unfortunately not improved so as to enable him to continue his work with us. Dr. McLean had his bachelor's degree from Sheffield Scientific School in 1907, and in 1908 his master's degree from the same school. He received the Ph. D. degree from Johns Hopkins University in 1914. He has had varied experience in research work in many parts of the United States and in the Philippines.

Prof. C. L. Sweeting on September 1 was appointed Professor of Economics and Business Administration to take over, as far as the duties of the new course in Business Administration will permit, the work previously carried on by Dr. Hall and Mr. Doe. Mr. Sweeting is a graduate of Harvard, 1914. He has an army record, was for two years graduate student at Syracuse, and comes to us from an assistant professorship in that university.

To fill the place of Mr. F. R. Clarke, Miss Marion E. Deats was appointed as instructor in Botany to date from September 1. Miss Deats is an A. B., 1920, of Mt. Holyoke College. From 1920 to 1922 she was a graduate student (holding a teaching fellowship) in botany in Syracuse University.

Mr. L. L. Tower was appointed, September 1, as instructor in Mechanical Engineering, vice M. G. Knowles, resigned. Mr. Tower is a graduate of the U. S. Naval Academy, 1920. He has had service on U. S. ships, resigning in 1922 from the position of Chief Engineer on the U. S. S. Toucey. Since his resignation he has been in industrial employment.

In place of Captain Knight the War Department has sent us Captain C. G. Hammond. Captain Hammond is a graduate of "The Citadel", Charleston, South Carolina, 1910, has an honorable war record as an officer in France and since his return has had excellent training in the Army schools. He was commissioned captain in the regular army July 1, 1920. Since his arrival here he has made an excellent impression on both faculty and students.

As professor of teacher-training in Home Economics Miss Grace C. Whaley has been appointed vice Miss Bear, resigned. Miss Whaley is a graduate of the R. I. College of Education, B. E. 1923, and has had professional work at Columbia University. Her experience has been as teacher of Household Arts at the Providence Technical High School.

As professor of teacher-training in Agriculture, Mr. George H. Baldwin, B. S. 1915, R. I. State College, was appointed, vice L. E. Abbott, resigned. He has been engaged since graduation in commercial work, and has had experience in teaching in the Colt Memorial High School.

Additions to Equipment.

The Home Economics practice house will be occupied by the department at the beginning of the half year in February. It will add much to both the training and to the comfort of the women students.

Acknowledgment of Gifts.

We are again obligated to the State Federation of Women's Clubs for the awarding of two scholarships of $50 each, one going to Miss Katherine B. Whaley, of Wakefield, and the other to Miss Gladys J. L. Peckham, of Newport. Both are Seniors of the current year. Likewise we are glad to acknowledge our continued obligation to the Triangle Club, of Kingston, which awarded this year its scholarship of $50 to Miss Flossie E. Buxton, of Pascoag. She is also a Senior.

The State Grange, this year, offered two prizes of $50 each to the young man in the Agricultural Course and the young woman in the Home Economics Course obtaining highest scholarship standing in said courses. The Agricultural prize went to Mr. William H. Brown, a Senior, of Newport, and the Home Economics prize to Miss Martha O. Sayles, a Sophomore, of Pascoag.

As gifts of equipment we owe sincere thanks (a) to Mr. A. B. Slater for an excellent transit, an instrument of the very finest finish, workmanship, and precision; (b) to the Narragansett Electric Light Company, through Mr. W. J. Mowbray, for repeated gifts of electrical instruments and apparatus of the very highest value to us in instructional work.

To all these helpful friends we owe and give sincerest thanks.

Commencement Exercises.

The commencement exercises were held June 16, 17 and 18. The occasion was marked by the return of the largest number of alumni ever gathered here on such an occasion. The baccalaureate address on Sunday was given by the undersigned, the title being "What is Man that Thou art mindful of him, or the Son of Man that Thou visiteth him?" On Commencement Day, Monday, addresses were delivered by Governor Flynn, Dr. Ran-

REPORT OF THE TREASURER.

R. S. BURLINGAME, Treasurer, *in account with the different funds of* RHODE ISLAND STATE COLLEGE, *for the year ending December* 31, 1923.

MORRILL FUND OF 1890 AND NELSON ACT OF 1907.

1923.				
Jan.	1	To Balance on hand		$19,587 24
July	1	U. S. Warrant for year ending June 30, 1924		50,000 00
Dec.	1	By instruction	$39,987 24	
		Balance on hand	29,600 00	
			$69,587 24	$69,587 24

MORRILL FUND OF 1862.

1923.				
Jan.	1	To cash from landscrip fund		$2,500 00
Dec.	1	By instruction	$2,500 00	
			$2,500 00	$2,500 00

SMITH-LEVER FUND OF 1914.

1923.				
Feb.	7	To U. S. Warrant (second installment for year ending June 30, 1923)		5,799 41
Aug.	31	U. S. Warrant (first installment for year beginning July 1, 1923)		5,799 41
Dec.	1	By Overdraft	$773 06	
		Apparatus	5 50	
		Furniture and Fixtures	1 89	
		Labor	5 40	
		Library	59 45	
		Postage, Telephone and Express	7 68	
		Publications	300 80	
		Salaries	7,849 04	
		Stationery and Printing	249 62	
		Supplies	21 33	
		Tools and Machinery	14 70	
		Traveling	1,340 54	
		Balance on hand	969 81	
			$11,598 82	$11,598 82

REPORT OF THE TREASURER.

R. S. BURLINGAME, Treasurer, *in account with the different funds of* RHODE ISLAND STATE COLLEGE, *for the year ending December* 31, 1923.

MORRILL FUND OF 1890 AND NELSON ACT OF 1907.

1923.				
Jan.	1	To Balance on hand		$19,587 24
July	1	U. S. Warrant for year ending June 30, 1924		50,000 00
Dec.	1	By instruction	$39,987 24	
		Balance on hand	29,600 00	
			$69,587 24	$69,587 24

MORRILL FUND OF 1862.

1923.				
Jan.	1	To cash from landscrip fund		$2,500 00
Dec.	1	By instruction	$2,500 00	
			$2,500 00	$2,500 00

SMITH-LEVER FUND OF 1914.

1923.				
Feb.	7	To U. S. Warrant (second installment for year ending June 30, 1923)		5,799 41
Aug.	31	U. S. Warrant (first installment for year beginning July 1, 1923)		5,799 41
Dec.	1	By Overdraft	$773 06	
		Apparatus	5 50	
		Furniture and Fixtures	1 89	
		Labor	5 40	
		Library	59 45	
		Postage, Telephone and Express	7 68	
		Publications	300 80	
		Salaries	7,849 04	
		Stationery and Printing	249 62	
		Supplies	21 33	
		Tools and Machinery	14 70	
		Traveling	1,340 54	
		Balance on hand	969 81	
			$11,598 82	$11,598 82

STATE—MAINTENANCE FUND.

1923.				
April 1	To State Appropriation			$98,083 33
Dec. 1	By Apparatus	$548 78		
	Auto and stable supplies	339 30		
	Books and periodicals	185 83		
	Chemicals	31 88		
	Commencement	471 36		
	Construction and repairs	4,370 50		
	Experiment station—aid	1,777 99		
	Extension—offset	1,344 57		
	Feed	2,626 10		
	Freight and express	4 18		
	Fuel	24,674 21		
	Janitors' supplies	179 10		
	Labor (janitor, farm, etc.)	16,133 08		
	Laboratory supplies	1,793 44		
	Lectures	215 82		
	Live stock	200 00		
	Oil and gasoline	1,042 03		
	Postage and stationery	2,095 37		
	Rental of land	500 00		
	Salaries	37,899 29		
	Seed	170 61		
	Tools and machinery	404 75		
	Traveling	491 00		
	Miscellaneous	584 14		
			$98,083 33	$98,083 33

STATE—REPAIRS AND IMPROVEMENTS.

1923.				
April 1	To State Appropriation			$35,000 00
Dec. 1	By Experiment Station—aid	$6,293 72		
	Agricultural equipment	3,442 82		
	Major repairs	6,004 44		
	Scientific apparatus	10,219 96		
	Fire protection	5,919 06		
	Trucks	3,120 00		
			$35,000 00	$35,000 00

STATE—PRACTICE HOUSE.

1923.				
April	1	To State Appropriation		$9,300 00
Dec.	1	By architect	$500 00	
		Construction	8,592 51	
		Electric lighting	153 00	
		Water	54 49	
			$9,300 00	$9,300 00

CURRENT FUND.

1923.				
Jan.	1	To Balance on hand		$63 19
		Reserve fund		2,000 00
		Department service		1,375 96
		Department sales		16,928 82
		Department fees		4,304 26
		Dormitory fees		6,505 21
		Laboratory sales		4,327 22
		Tuition		3,217 50
		Interest		961 10
		Vocational board		3,804 70
		Project trainees		70 00
		Commencement		357 35
		Miscellaneous		3,161 16
		Amount overdrawn		15,723 43
Dec.	1	By Advertising in publications	$223 00	
		Apparatus	271 58	
		Auto and stable supplies	391 93	
		Books and periodicals	540 63	
		Commencement	709 92	
		Construction and repairs	1,614 94	
		Electric current furnished	1,867 26	
		Entertainment	768 16	
		Experiment Station—aid	1,593 85	
		Extension—offset	995 34	
		Feed	1,527 56	
		Fertilizers	1,183 45	
		Freight and express	932 33	
		Fuel	1,053 10	
		Furniture	209 11	
		Janitors' supplies	246 47	
		Labor (janitor, farm, etc.)	6,468 57	
		Labor (student)	5,202 49	
		Laboratory supplies	3,427 83	
		Lectures	58 27	

Live stock	1,109 25	
Oil and gasoline	631 50	
Postage, stationery and printing	1,485 34	
Refund	986 85	
Rental of dormitories	2,793 09	
Rental of land	125 00	
Salaries	20,155 82	
Seed	159 90	
Telephone and telegraph	787 32	
Tools and machinery	79 30	
Traveling	1,744 47	
Miscellaneous	1,456 27	
Reserve Fund	2,000 00	
	$62,799 90	$62,799 90

TRUST FUND.

1923.				
Jan. 1	To Balance on hand			$10,602 51
	Boarding receipts			83,637 88
	Dairy-advanced registry			2,189 99
	Store receipts			9,956 58
Dec. 1	By Boarding	$84,447 20		
	Dairy-advanced registry	2,554 03		
	Store	8,933 29		
	Balance on hand	10,452 44		
		$106,386 96		$106,386 96

HATCH FUND—EXPERIMENT STATION.

1923.				
Jan. 1	To United States check for quarter			$3,750 00
April 1	United States check for quarter			3,750 00
July 1	United States check for quarter			3,750 00
Oct. 1	United States check for quarter			3,750 00
Dec. 1	By Overdraft	$452 68		
	Building and land	252 19		
	Chemical supplies	1 80		
	Feeding stuffs	348 22		
	Fertilizers	923 67		
	Freight and express	300 23		
	Furniture	77 09		
	Heat, light, water and power	330 57		
	Labor	4,332 46		
	Library	126 10		
	Postage and stationery	152 91		

Publications	1,390 85	
Salaries	5,444 68	
Scientific apparatus	12 25	
Seeds, plants and supplies	261 31	
Tools and machinery	194 80	
Traveling	61 81	
Balance on hand	336 38	
	$15,000 00	$15,000 00

ADAMS FUND—EXPERIMENT STATION.

1923.				
Jan. 1	To	United States check for quarter		$3,750 00
April 1		United States check for quarter		3,750 00
July 1		United States check for quarter		3,750 00
Oct. 1		United States check for quarter		3,750 00
Dec. 1	By	Overdraft	$1,223 09	
		Building and land	205 95	
		Chemical supplies	168 61	
		Feeding stuffs	1,244 84	
		Freight and express	14 47	
		Heat, light, water and power	562 74	
		Labor	2,465 07	
		Library	21 16	
		Live stock	15 50	
		Postage and stationery	17 95	
		Salaries	8,832 82	
		Scientific apparatus	1 00	
		Seeds, plants and supplies	31 56	
		Tools and machinery	31 57	
		Traveling	6 10	
		Balance on hand	157 57	
			$15,000 00	$15,000 00

MISCELLANEOUS FUND—EXPERIMENT STATION.

1923.				
Jan. 1	To	Balance on hand		$2,318 11
		Department sales		5,056 33
		Department service		238 20
		Interest		90 04
Dec. 31	By	Building and land	$73 05	
		Chemical supplies	115 05	
		Feeding stuffs	205 47	
		Fertilizers	1,007 35	
		Freight and express	466 88	

	Heat, light, water and power	125 24	
	Labor	1,548 27	
	Library	171 50	
	Furniture	33 60	
	Postage and stationery	42 37	
	Publications	160 35	
	Salaries	1,517 91	
	Scientific apparatus	16 33	
	Seeds, plants and supplies	151 96	
	Tools and machinery	127 06	
	Traveling	189 77	
	Contingent expenses	24 90	
	Balance on hand	1,725 62	
		$7,702 68	$7,702 68

STATE FEEDING STUFF INSPECTION—EXPERIMENT STATION.

1923.				
April 1	To	State Appropriation		$1,191 66
Dec. 1	By	Chemical supplies	$11 12	
		Freight and express	3 42	
		Heat, light, water and power	112 08	
		Labor	809 01	
		Publications	92 50	
		Scientific apparatus	99 15	
		Seeds, plants and supplies	2 72	
		Traveling	55 85	
		Contingent expenses	5 00	
		Balance on hand	81	
			$1,191 66	$1,191 66

STATE FERTILIZER CONTROL—EXPERIMENT STATION.

1923.				
Jan. 1	To	Fertilizer Fees		$2,888 00
Dec. 1	By	Chemical supplies	$291 64	
		Freight and express	15 99	
		Heat, light, water and power	156 55	
		Labor	2,049 92	
		Postage and stationery	31 65	
		Publications	98 50	
		Scientific apparatus	123 70	
		Tools and machinery	4 30	
		Traveling	115 20	
		Balance on hand	55	
			$2,888 00	$2,888 00

EXPERIMENT STATION—AID.

(Included in Current and State Maintenance Funds.)

1923.			
Dec. 1	By Feeding stuffs	$205 06	
	Freight and express	45 65	
	Furniture and fixtures	1 25	
	Heat, light, water and power	282 91	
	Labor	410 89	
	Postage and stationery	34 60	
	Salaries	2,391 48	
			$3,371 84

EXPERIMENT STATION—SPECIAL.

(Included in State Repairs and Improvements Fund.)

1923.			
Dec. 1	By Building and land	$15 57	
	Chemical supplies	14 00	
	Feeding stuffs	128 05	
	Fertilizer	22 40	
	Freight and express	160 10	
	Furniture and fixtures	35 85	
	Heat, light, water and power	20 86	
	Labor	1,329 38	
	Library	26 27	
	Live Stock	45 00	
	Postage and stationery	343 14	
	Publications	285 84	
	Salaries	3,155 43	
	Seeds, plants and supplies	115 84	
	Scientific supplies	103 96	
	Tools and machinery	52 61	
	Traveling	411 42	
	Contingent expenses	28 00	
			$6,293 72

SUMMARY, EXCLUSIVE OF EXPERIMENT STATION.

Total income, including balances:

United States—1890	$69,587 24	
United States—1862	2,500 00	
United States—1914	11,598 82	
		$83,686 06

State:			
Maintenance		$98,083 33	
Repairs and Improvements		35,000 00	
Practice House		9,300 00	
			$142,383 33
Institution:			
Current		$47,076 47	
Trust		106,386 96	
			$153,463 43
			$379,532 82
Total expenditures:			
United States—1890		$39,987 24	
United States—1862		2,500 00	
United States—1914		10,629 01	
			$53,116 25
State:			
Maintenance		$98,083 33	
Repairs and Improvements		35,000 00	
Practice House		9,300 00	
			$142,383 33
Institution:			
Current Fund		$62,799 90	
Trust		95,934 52	
			$158,734 42
			$354,234 00
Balance on hand			$25,298 82
Balance held as follows:			
Morrill Fund—1890		$29,600 00	
Smith-Lever Fund		969 81	
Trust Fund		10,452 44	
Current Fund Deficit		15,723 43	
			$25,298 82

I hereby certify that the above is correct and true, and truly represents the details of expenditures for the period and by the institution named.

R. S. BURLINGAME,
Treasurer.

This is to certify that we, the undersigned, auditing committee of the Board of Managers of Rhode Island State College, have examined the accounts of R. S. Burlingame, Treasurer of the said college, and find the same correct.

THOMAS G. MATHEWSON,
CHARLES ESTES,
Auditors.

THIRTY-SIXTH ANNUAL REPORT OF THE DIRECTOR OF THE AGRICULTURAL EXPERIMENT STATION.*

PRESIDENT HOWARD EDWARDS,

Rhode Island State College.

DEAR SIR:—

Hereby are submitted brief statements of such experimental results obtained during 1923 as will serve to indicate the nature of the more important lines of work.

In such a report of progress it should be understood clearly that present ideas regarding some of the results are liable to modification in the future as the researches are continued. Nevertheless, it seems desirable to transmit annually a paragraph concerning the impressions derived from each project, even if some readers do attach too much importance to certain indications.

Publications.

A method for the determination of "active" aluminum in acid soils. *In* Soil Science, 1923, v. 15, no. 2, p. 131-136.

The colon-typhoid intermediates as causative agents of disease in birds: II. Atypical organisms. Bul. 191, January, 1923, 42 p.

Preliminary study of the methods and means of handling fresh produce in Rhode Island. Bul. 192, January, 1923, 28 p.

Thirty-fifth annual report of the station. *In* Bul. of Rhode Island State College, v. 18, p. 37-49. Also Bul. 193, February, 1923, 16 p.

Standards of attempted separation, by the permanganate methods, of the better and the poorer quality of insoluble fertilizer-nitrogen. *In* Jour. Assoc. Off. Agr. Chem., 1923, v. 7, no. 1, p. 55-57.

Comparison of "active" aluminum and hydrogen-ion concen-

---

*Contribution 305. In Bulletin of Rhode Island State College, V. XIX, February, 1924.

trations of widely separated acid soils. *In* Soil Science, 1923, v. 15, no. 5, p. 407-412.

Inspection of feeds. Annual feed circular, April, 1923, 12 p.

Inspection of fertilizers. Annual fertilizer circular, October, 1923, 13 p.

"Active" aluminum as a factor detrimental to crop production in many acid soils. Bul. 194, June, 1923, 40 p.

On the amount of stable manure necessary for vegetable growing. Bul. 195, August, 1923, 16 p.

The comparative crop effect of fertilizer chemicals, cow manure with straw bedding or with planer-shavings bedding, and of the latter supplemented with phosphorus or potassium. Bul. 196, November, 1923, 12 p.

The control of blackhead in turkeys. Extension Bul. 31, November, 1923.

Weather.

Detailed records may be found in the Climatological Data, New England Section, of the U. S. Department of Agriculture Weather Bureau. The minimum temperature of 8° on April 1 was the lowest April temperature in our records of a third of a century. The latest killing frost was on May 11 and the earliest one on October 7. On September 19, however, tender crops in the lowlands were touched somewhat by the frost; corn was frosted, whereas contiguous sunflowers were not. In view of the excessively dry summer, it was fortunate that the average temperature was below normal, namely: 1.3° in May; 2.6° in July, and 2.6° in August.

The April rainfall was the largest in ten years, but May, June, July and August were the driest that these four months have been since 1891. There were only 8.42 inches of rainfall. For the five and a half consecutive months, including September and half of October, the rainfall was below normal.

The benefits from the overhead irrigation of celery were lessened by the increased blight, perhaps because of the cool weather.

Organic Matter for the Soil.

In the following spring it was seen that the four winter legumes which were sown on July 29, 1922, had come through

the winter in the following decreasing order: sweet clover, red clover, alfalfa, vetch; there were very few plants of the latter. Copenhagen cabbage plants set out early in June, 1923, yielded around 16 tons of hard heads where the red clover and vetch were turned in, and around 12 tons following the alfalfa and sweet clover. For a number of years, in which no manure has been used and a low-nitrogen fertilizer applied, the plat where red clover is the green manure has yielded as well as, or better than, any of the other plats.

Based on the average of the last four years, where corn is grown continually with complete fertilizer, 20 pounds of nitrogen per acre each year, with a legume cover crop plowed in, resulted in 55 bushels of corn; 60 pounds of nitrogen, with a rye cover crop plowed in, resulted in 49 bushels; and with no cover crop, in 42 bushels.

When supplied with plenty of fertilizer, early cabbages following late celery of the previous year, in the market garden rotations, gave as usual about the same yields regardless of whether, during the rotation, organic matter has been supplied in stable manure, peat, or green manures. Early tomatoes and late celery, however, have not yet yielded as well with the peat and green manures as with the stable manure, but an improvement is being made, especially with the tomatoes. Early lettuce and late beets and spinach have responded better than usual on the peat plats, due to a larger proportion of acid phosphate in the fertilizer. The details of two rounds of this rotation may be found in Bulletin 188.

Green manure crops planted during the latter half of July, to find out which will produce the largest amount of water-free material above ground, have yielded the following as an average of five years:

	Dry matter per acre. Tons.		Dry matter per acre. Tons.
Japanese millet	1.72	Corn	1.38
Pearl millet	1.60	Buckwheat	1.36
Sunflower	1.54	Sudan-grass	1.27
Barley	1.39	Cowpea	.87

The sunflower and barley were not damaged by frost until October 7. The others were damaged so much on September 19 that they were harvested soon afterwards.

Planted during the last half of July each year for green manure, mammoth clover, cow-horn turnips and soybeans are plowed under in the autumn, and their effect on both early lettuce and beets compared with that of mammoth clover, rye and timothy turned under in the spring. No striking differences have yet appeared.

Where ten cords of only manure is used regularly in comparison with only fertilizer, the spring spinach yielded a fourth more with the fertilizer; but during the unusually dry period which followed, the eggplants yielded only a third as much with the fertilizer as with the manure.

In case of the following three-year rotation: 1, beets before cauliflower; 2, spinach before carrots; 3, eggplant, as large crops have, in general, been produced when 16 tons instead of 32 tons of stable manure have been supplemented by fertilizer; mild exceptions being beets and eggplant, unless cauliflower is replaced by ryegrass and clover for green manure. With the latter modification, the manure has been reduced to 8 tons and the yields of all crops except eggplant maintained by fertilizer. Six years' results of this experiment have been published in Bulletin 195 during the year.

Efficiency of Fertilizers and Other Manures.

Although the fertilizer law of the state requires a guaranty of only total nitrogen, as far as this element is concerned, there were, nevertheless, 27 brands with a guaranty of "available" instead of total nitrogen. This practice is seriously condemned, at least until such guaranties are justified, for only 11 of the 27 brands were true to such a guaranty. The degree to which nitrogen is available is dependent upon the amount which can be used by plants during the first growing season in comparison with that obtained from nitrate of soda which is accepted as the standard.

Mixed hay during six continuous years, with annual topdressing of 75 pounds of phosphoric oxid in acid phosphate and 50 pounds of potassium oxid in wood ashes, has yielded the follow-

ing average weights, with the different nitrogenous topdressings:

	Tons of hay per acre.
Horse stable manure, 4 cds	2.94
Nitrate of soda, 50 lbs. N. per A	3.24
Nitrate of soda, 25 lbs. N. per A	2.76
Cyanamid, 25 lbs. N. per A	2.47
Sulfate of ammonia, 25 lbs. N. per A	2.39

Where more lime is used with sulfate of ammonia than with nitrate of soda, as is necessary if acidity is reduced to the same amount, about as much mixed redtop and legume hay has been produced, during two years, with the sulfate as with the nitrate.

With a deficiency of only phosphorus, but under otherwise optimum conditions, miscellaneous crops showed as usual that the better carriers of phosphorus were acid phosphate, Thomas slag phosphate and ground bone. In general, the double or triple superphosphate was somewhat inferior to these. Floats, or undissolved phosphate rock was inferior to acid phosphate even where over four times as much phosphorus has been applied in the floats during the last two years.

Where the different commercial potash salts are used in such a way that not only an insufficient amount of potassium, but the associated elements also, have an opportunity to exert an influence, the kainit usually gave the best yields, probably because of its sodium. The magnesium-potassium sulfate with no sodium and but little potassium has shown a tendency to be inferior to the sulfate and muriate.

As usual on the early market garden crops, 1500 pounds of a 4-10-2 fertilizer was a decidedly better supplement to 16 tons of horse manure than was an additional 16 tons of manure instead of fertilizer. A larger amount of nitrogen in the fertilizer, however, was profitable with the early cabbages but not with the early tomatoes and lettuce. A larger amount of phosphorus gave as usual a much better lettuce crop but was of no use to the cabbages and tomatoes. There has been no gain from additional potassium. For the second crops of this rotation, 1000 pounds of a 5-7-6 fertilizer was used to supplement the spring application of manure and fertilizer chemicals. Owing to the unusually

dry weather normal late crops of beets, spinach and celery were not obtained.

The first three rounds were completed of the three-year rotation: 1, oat and pea hay followed by rutabagas; 2, silage corn; 3, timothy and clover hay. The crops receiving cow manure with straw bedding have averaged about a tenth larger than with planer-shavings bedding, at four cords per acre annually. As supplements to the latter, phosphorus or potassium affected the hay crops about equally, but on rutabagas the phosphorus effect was the outstanding one. By the use of 9000 pounds of a 5-8-2 fertilizer without manure during the nine years, the average yields of the manure plats were maintained at a cost justifying a price of $5.00 a cord for the manure. The results of this experiment have been published during the year in Bulletin 196.

Plant Differences and Needs.

The Green Mountain potato, which was the chief variety grown on the rotations, yielded a total of 350 bushels an acre as compared with Early Eureka at 300. Ten crosses of potatoes supplied by the U. S. Department of Agriculture yielded from 233 bushels to as high as the Green Mountain variety.

As early spinach, the King of Denmark and Savoy-leafed yielded about a third less than Giant Thick-leaf, but of late spinach the latter was not so productive as the Savoy.

Of eggplants, what were purchased for Black Beauty, Extra Early Dwarf and New York Improved Purple yielded larger fruit, about 3 pounds each, and greater total weight than Florida High Bush, Early Long Purple and Black Pekin. The fruit of the last two weighed 0.5 to 0.8 pound each.

The timothy strain test conducted in cooperation with the U. S. Bureau of Plant Industry was continued through a second year and differences noted in length, maturity and yield.

Home-grown annual white sweet clover or Hubam seed in the hull, broadcasted in April and the clover cut about July 20, yielded 1.8 tons of hay in 1921, and on second trial in 1922, 2.3 tons. When drilled in rows 16 inches apart also in 1922, it yielded 2.8 tons of hay.

From the same number of cabbage plants set out about May

10, the following yields were obtained in 1922 and 1923, combined:

	July 10-12		July 20-22		Lbs. per
	Heads	Lbs.	Heads	Lbs.	head
Copenhagen	50	133	86	245	2.8
Charleston Wakefield.....	24	46	54	129	2.2

At the request of the market gardeners a field strain test of Salamander or Black-seeded Tennis Ball lettuce seed was conducted. Seed submitted by F. H. Woodruff & Sons and by Comstock, Ferre & Co. germinated the most quickly and strongly of any, and no others excelled them in any respect throughout the test. Satisfactory seed was submitted also by Fottler, Fiske, Rawson Co., I. N. Simon & Son, W. Atlee Burpee Co., Joseph Harris Co., Stokes Seed Farms Co., and Frederick W. Eberle, although the seed from the last three dealers did not have so high a degree of germination. Another sample, marked Black-seeded Tennis Ball instead of Salamander, sent by Fottler, Fiske, Rawson Co., did not yield satisfactorily. Seed submitted by Peter Henderson & Co. was very poor in germination and production, and that sent by J. J. H. Gregory & Son was valueless.

The field corn on grass sod in long-time rotations without farm manure was grown in 1923 on plats which have two amounts of each fertilizer element applied in order to determine the fertilizer needs of the crop. Where only nitrogen was the limiting element, 30 bushels were produced with only the soil nitrogen, 54 bushels with 45 pounds of nitrogen, and 63 bushels with 60 pounds. This gives no economic reason for reducing the regular rotation nitrogen below the 45 pounds now used. A reduction of 60 per cent in the usual amount of phosphorus seemed to reduce the yield, but this was not the case with potassium. Reducing or increasing the regular application a third changed the yields a sixth. Not much change from 1200 pounds of a 5-8-5 fertilizer seems justified under the conditions.

In 1923, the asparagus was cut before the potassium and sodium salts were applied, therefore the differences in yields were influenced by no later applications than those of 1922. The amounts of nitrogen and phosphorus were uniform and liberal. On different plats, the 1922 application of potassium oxid varied

up to 75 pounds per acre and of sodium oxid up to 500 pounds, in chlorids and carbonates. Where the larger amounts of sodium supplemented potassium, the greatest yields were usually obtained with the chlorids instead of the carbonates. With the smallest amount of potassium, both sodium salts were useful up to the largest application. After the 1923 harvest, the maximum sodium oxid was increased 700 pounds per acre.

In the past two years, six crops have been planted at the same time under like conditions where potassium was the only deficiency and again where phosphorus was the only deficiency, for comparison with the same crops planted where conditions were optimum and there was ample fertilizer. The average of the two years is given below:

	Carrots	Corn	Mangels	Oats (in dough)	Onions	Potatoes
	Bu.	Bu.	T.	T.	Bu.	Bu.
Yields with ample fertilizer.....	831	64	35.1	8.3	471	250
Yields with no-phosphorus fertilizer	681	26	10.2	3.8	132	163
Yields with no-potassium fertilizer..	572	12	9.7	7.3	75	100
Per cent of full crop produced with						
No-phosphorus fertilizer.....	82	41	29	46	28	65
No-potassium fertilizer	69	19	28	88	16	40

If the proportion of the ingredients in a fertilizer is considered as low, medium or high when the available phosphoric oxid is 8, 10 or 12, and when the soluble potassium oxid is 3, 5 or 7, then the respective ratios of these two ingredients in fertilizers suitable for these six crops *when grown under the same conditions* on the basis of these results might be as follows: carrots 8:3; corn 10:7; mangels 12:7; oats 10:3; onions 12:7; potatoes 8:5.

Of the above crops, even with liberal acid phosphate, the carrots, corn and oats were still not improved where the soil was nearly neutral due to previous applications of lime; but, as usual, the onions and mangels produced more there. The potatoes grew relatively better there than in 1922.

In the greenhouses, attempts to grow the crops in non-manure media to enable a determination of their nutrient requirements were continued. Spinach has not grown satisfactorily during the shorter days of the year even in manure compost and its cul-

ture was abandoned. Radish did fairly well under the same circumstances. In the early months of the year, no great difficulties have arisen with tomatoes. There is still much to be learned about cucumbers and lettuce before chemical tests and conditions for best growth can be correlated.

Rosen rye produced a third more grain than common rye. In the very dry season of 1923 neither rye was so strawy as in 1922; yet the greater leafiness of the Rosen rye left the new grass and clover much thinner than did the common rye. This is an important consideration where spring seeding in the rye is practiced.

Effect of Crops on Each Other.

Sixteen different plats which have been uniformly and liberally fertilized and limed were planted to carrots, following two years' culture of sixteen different crops. The carrots yielded from 692 to 802 bushels after carrots, oats, alsike clover and cabbage; from 823 to 877 bushels after rye, redtop, buckwheat, red clover, timothy and potatoes; and from 889 to 999 bushels after squash, corn, mangels, millet, rutabagas and onions. After potatoes and buckwheat there was an exceptionally large proportion of seconds, more than a third; whereas this proportion was only about a ninth of the largest yields. The yield of carrots following oats was doubtless lower than it would have been except for a struggle there to keep spurry from interfering with the young carrots.

Late cabbages following four different first crops grown in the same season, under conditions intended to be suitable, have given the following yields as a six-year average.

	Late cabbage heads. Tons per acre.
Planted after beets	9.51
Planted after spinach	9.05
Planted after potatoes	8.90
Planted after peas	8.11

Carrots, corn, mangels, oats, onions and potatoes were grown crosswise certain plats in 1922 and lengthwise in 1923. Especially where acid-soil conditions were marked and phosphorus was de-

ficient, the differences in growth were very great in some cases depending upon the crop which preceded. Mangels and corn, for example, which occupied contiguous areas in 1922 had extreme effects on some of the crops. Onions yielded three times as much after corn as after mangels, and corn also considerably more. Indications were obtained that there was the most active aluminum in the areas where growth was poorest.

Modification of Sour Soils.

The plats that receive high calcium or high magnesium hydrate or carbonate were seeded down with clovers and grasses. The first season was too soon for interesting differences to be observed.

In connection with numerous plats of lawn or putting-green grasses receiving various topdressings, acid-soil conditions have been maintained by annual applications of about 250 pounds each of sulfate of ammonia, acid phosphate and muriate of potash per acre, and such troublesome weeds as plaintain, dandelion, chickweed and crabgrass, entirely eliminated from competition with Rhode Island bent and certain fescues. The long-time cumulative effect of this "acid" treatment, as measured in comparison with the same amount of fertilizer ingredients in an "alkaline" mixture, is shown by the following dry-basis determinations made in July 1922 on the surface soil:

	Soil with "acid" topdressing.	Soil with "alkaline" topdressing.
"Active" alumina, .5 *N* acetic acid, p. p. m.	668	267
"Specific acidity"	315	6
pH	4.5	6.2

In Bulletin 194 may be found the effect specially of lime and acid phosphate in reducing the amount of "active" aluminum in soil. Such aluminum is believed to be toxic to certain crops grown in acid soils. For example, mangels and onions made their greatest growth in a neutral soil (specific acidity 1.) containing 340 p. p. m. of active alumina; whereas, carrots, corn, oats and potatoes grew better where there was a higher specific acidity, even though the active alumina was considerably greater. In 1923 a very large application of acid phosphate was made to

a limed soil with the result that the active alumina was reduced to 235 p. p. m. and the bunches of early beets were increased threefold.

Certain crops grow less well in a soil which has been neutralized because they become chlorotic or lose their normal green color. In 1922 and 1923 the maximum crops of mangels were obtained with a liberal amount of acid phosphate added to a soil that had been made nearly neutral by liming; but where acid-soil conditions were so pronounced that the mangels could not live without phosphorus, they produced, without any application of lime, a fifth of the maximum crop where 300 pounds of acid phosphate were added and *four-fifths* where 900 pounds of acid phosphate were added. These illustrations again emphasize the fact that not only lime but soluble phosphorus is wonderfully effective in modifying acid-soil conditions.

Inheritance Studies with Poultry.

In the flock selected for a number of years for lighter and heavier eggs, the breeding work has been discontinued and the records are nearly complete. The results have, however, not as yet been analyzed. Selection was effective to a certain degree, so that two distinct strains of White Plymouth Rocks were produced, the one laying an egg much lighter than that of the other.

The records on the Cornish-Hamburg cross for study of the inheritance of body weight have been completed and are being worked up for publication. Some White Leghorns and Light Brahmas have been crossed and their offspring reared. The results indicate that the offspring will in nearly all cases equal the Brahmas in weight. Their egg production so far compares favorably with that of the Leghorns. In color the offspring of this cross are mostly white; but various discolorations frequently appear. Feathering on the shanks is much less pronounced than on the Brahmas, but few birds appear without any feathers on the shanks.

Studies of Diseases in Poultry.

The attempt to rear turkeys free from blackhead by rotating them on small areas was not quite so successful as last year. Due to a high degree of infertility only about 65 poults were

hatched. They were all reared with mother hens. On account of the dry season the grass did not grow as under normal conditions. This increased the number of cases of blackhead above that of last year, but poults reared on such limited space under ordinary conditions would nearly all have died of blackhead.

The results of the work on atypical bacteria from diseased poultry have been published in Bulletin 191.

The laboratory work on the bacterial contents of eggs from artificially infected hens had in a large measure to be repeated to clear up certain points. The results show no increase in the number of eggs with infected yolk due to artificial infection of the hens. No germicidal power was developed in the albumen of the eggs from infected birds, but slight agglutination occurred when the homologous antigen was mixed with albumen in the lower dilutions. The results of this work are now being prepared for publication.

In the study of white diarrhea in chicks, both laboratory and field studies have been continued. Some strains of *Bact. pullorum* are much more easily agglutinated by serum from infected hens than others. An attempt to discover the reason for this showed that the agglutination titer of any given strain cannot be increased by passage through chicks. Some tests show that the serum from a very strongly reacting hen may fail to agglutinate the bacteria in the lower dilutions, but will produce complete agglutination when tested in higher dilutions.

The laboratory work on paralysis in adult birds has been continued although material for study was very scarce. Very few cases of the disease were brought to the attention of the department. This may have been due in part at least to the unusually dry season.

Some work has been done on the study of intestinal disinfectants for poultry. This work is being continued.

Respectfully submitted,

BURT L. HARTWELL,
Director.

Kingston, R. I.,
January 11, 1924.

APPENDIX A.

Summaries Dealing with Certain Phases of Receipts and Expenditures for the Year Ending June 30, 1923.

Summary for the Year.

Balance on hand July 1, 1922	$88,797 41
Total income during year	384,317 87
Total	$473,115 28
Total expenditures during year	398,605 81
Balance on hand July 1, 1923	$74,509 47

Income.

Income from students:

Tuition fees	$2,806 00	
Matriculation and incidental fees	3,990 57	
Chemicals and laboratory supplies	4,853 41	
Dormitory fees	6,681 50	
Dining halls	82,332 10	
Store sales	9,137 21	
		$109,800 79

Income from State and Nation:

State—Maintenance Appropriation		$98,083 33	
	Repairs and Improvements	35,000 00	
	Practice House	9,300 00	
			$142,383 33
Federal—Morrill Act of 1890 and Nelson Act of 1907		$50,000 00	
	Morrill Act of 1862	2,500 00	
	Hatch Act of 1887—Experiment Station	15,000 00	
	Adams Act of 1906—Experiment Station	15,000 00	
	Smith-Lever Act of 1914—Extension	11,598 82	
			$94,098 82

Income from other sources:		
Department sales and service		$31,421 85
Interest		1,030 35
Experiment Station:		
Department sales and service	$5,507 30	
Interest	75 43	
	$5,582 73	
		$38,034 93
Total income		$384,317 87
Receipts from tuition		$2,806 00
Students taking course of one year or more	391	
Students paying tuition (non-resident in Rhode Island) at rate of $50.00 per year	63	

EXPENDITURES.

Expenditures, exclusive of Experiment Station and Extension Service:	
Advanced herd registry	$2,369 94
Advertising in publications	234 00
Apparatus	735 50
Auto and stable supplies	912 88
Boarding	90,538 37
Books and periodicals	1,327 58
Commencement	1,288 18
Construction and repairs	6,730 24
Construction and repairs, special	41,387 71
Dormitory and land rental	3,666 00
Electric current furnished outside college	2,444 04
Entertainment	724 06
Feed	4,330 77
Fertilizers	1,257 53
Freight and express	1,078 60
Fuel	24,725 65
Furniture	418 43
Gasoline and oil	1,940 62
Janitors' supplies	505 30
Labor (engineers, poultrymen, farm, etc.)	22,718 03
Labor (undergraduate, exclusive of boarding)	5,431 38
Laboratory supplies	4,839 16
Lectures	565 02
Postage, stationery and printing	4,428 67
Refunds	1,017 65
Salaries	107,390 18

Seeds and plants	416 68	
Store	8,180 75	
Telephone and telegraph	809 77	
Tools and machinery	448 02	
Traveling	2,422 91	
Miscellaneous	2,442 21	
		$347,725 83
Expenditures, Experiment Station	37,682 34	
Expenditures, Extension Service	13,197 64	
Total expenditures		$398,605 81

Analysis of Balance, July 1.

	1922	1923
Morrill Fund of 1890		
Morrill Fund of 1862		
Smith-Lever Fund—Extension Service		
Hatch Fund—Experiment Station		
Adams Fund—Experiment Station		
State—Maintenance	$41,790 86	$22,998 93
State—Repairs and Improvements	29,234 34	22,846 63
State—Practice House		9,300 00
Current Fund	7,476 06	13,306 37
Trust Fund	8,245 95	1,453 02
Miscellaneous—Experiment Station	50 20	2,604 52
Reserve Fund	2,000 00	2,000 00
	$88,797 41	$74,509 47